



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/313,424	05/17/1999	THOMAS HUTTNER	GR-98-P-8041	3890

7590 05/09/2002

LERNER AND GREENBERG PA
PO BOX 2480
HOLLYWOOD, FL 33022-2480

EXAMINER

KEBEDE, BROOK

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 05/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/313,424

Applicant(s)

HUTTNER ET AL.

Examiner

Brook Kebede

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-6 and 16-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20 and 24 is/are rejected.
- 7) ☒ Claim(s) 21-23 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. The amendment filed on February 11, 2002 in Paper No. 21 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claim 24 recites the limitation "doping the monocrystalline silicon layer differently region by region by ion implantation." However, the recited limitation has no support in the specification as originally filed. Applicant is required to cancel the new matter in the reply to this Office Action.

Drawings

2. The corrected or substitute drawings were received on February 11, 2002. These drawings are acceptable.

Claim Objections

3. Claims 21-23 and 25 are objected to because of the following informalities:

Claim 21 recites the limitation "the method according claim 7, ..." in line 1. However, claim 7 is no longer exists in the application due to amendment filed on July 25, 2001 in Paper No. 16. It appears a typo but at this point it is not clear to the Examiner the dependency of the claim. Claims 22, 23 and 27 also objected as being dependent of the objected base claim. Accordingly, claims 21-21 and 25 have not been further treated on the merits. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 2823

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 24 recites the limitation "doping the monocrystalline silicon layer differently region by region by ion implantation." However, the recited limitation has no support in the specification as originally filed. Therefore, the subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recited the limitation "wherein the introducing step comprises defining an implantation maximum for the passivating substance X in the vicinity of the interface. However, it is not clear to the Examiner how is the implantation maximum is defined for the passivating substance in the vicinity of the interface. The claim lacks clarity in its scope and meaning. Therefore, the claim is indefinite in its scope and meaning.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 16- 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable Hsu (US/5,468,657) in view of Sato et al. (USPAT/5,854).

Re claim 16 -19 Hsu teaches a method of fabricating a semiconductor configuration comprising: providing a semiconductor structure (see Fig. 4) having a base layer (44), an insulation layer (59), and a monocrystalline silicon layer (3); introducing a passivating substance X (not labeled) (i.e., ion-implanting) between the insulation layer (59) and the monocrystalline silicon layer (3) having maximum implant concentration of X substance; and heat-treating the semiconductor structure with the passivating substance X, thereby, causing the passivating substrate diffuse into an interface between the insulation layer (59) and the monocrystalline silicon layer (3) (see Fig. 4 and Col. 7, lines 24-45).

However, Hsu does not specifically disclose limitations of providing two silicon semiconductor substrates; oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates; selecting an introducing step from a group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates; joining the two silicon semiconductor substrates by contacting the two

Art Unit: 2823

oxide layers; and partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer.

Sato et al. disclose providing two silicon semiconductor substrates; oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates; selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates; joining the two silicon semiconductor substrates by contacting the two oxide layers; and partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer in order to form SOI (see Figs. 2A-2D).

Sato et al. suggest that "formation of mono-crystalline Si semiconductor layer on an insulator is well known as silicon-on-insulator (SOI) technique. Many investigations have been made thereon since the devices made by the SOI technique have many advantages which are not achievable with a bulk Si substrate for usual Si integrated circuits. The advantages brought about by the SOI technique are as below: 1. Ease of dielectric separation, and practicability of high integration, 2. High resistance against radioactive rays, 3. Low floating capacity, and practicability of high speed operation, 4. Practicability of omission of a welling step, 5. Practicability of prevention of latching-up, 6. Practicability of thin film formation for complete depletion type field effect transistor, and so forth." (see Sato et al. Col. 3, lines 42-59) One of ordinary skill in the art would have motivated to use SOI technique as Sato et al. disclosed in order to improve the overall device performance and applicability of the device.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Hsu reference with SOI technique as taught by Sato et al. because the device performance would have been improved.

Re claim 20, as applied to claim 16 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of forming a covering oxide layer (68) on the monocrystalline silicon layer (see Fig. 5).

Re claim 24, as applied to claim 16 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of doping the monocrystalline silicon layer differently region by region by means of ion implantation; and performing the doping step after the step of introducing the passivating substance X and the heat-treating step (see Col. 8, lines 17-67).

Response to Arguments

10. Applicants' arguments with respect to claims 16-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2823

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede

BK
May 5, 2002

Wael Fahmy
SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800